

Cornish Quadrangle, Maine

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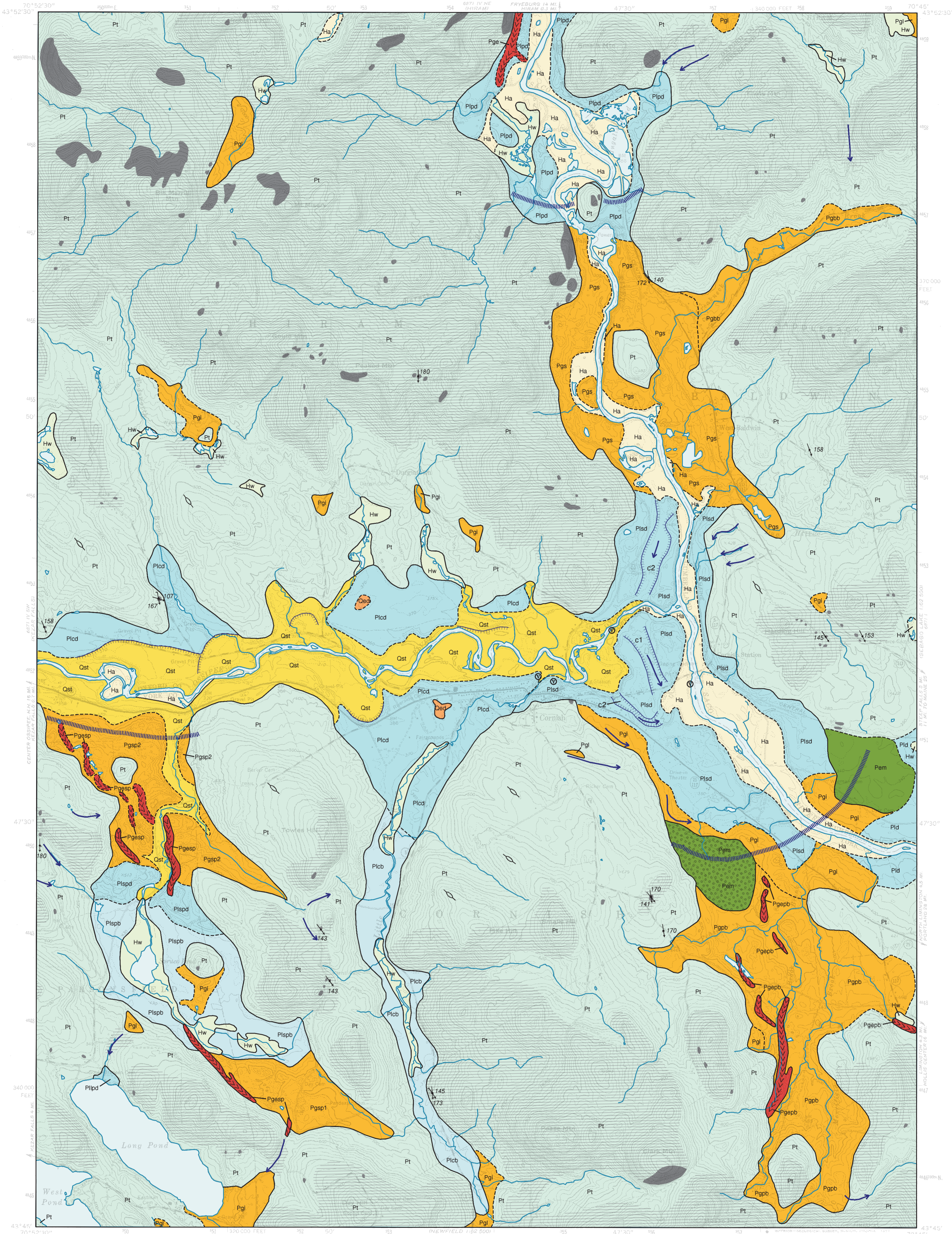
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For additional information,
see Open-File Report 97-69.

Surficial Geology



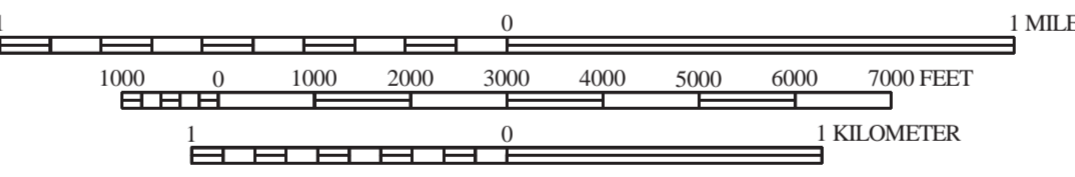
SOURCES OF INFORMATION

Surficial geologic mapping by Robert M. Newton completed during the 1992-1996 field seasons; funding for this work provided by the U. S. Geological Survey STATEMAP program. William R. Holland conducted additional surficial geologic and materials field work during the 1983 field season, funded by the significant sand and gravel aquifer program of the Maine Geological Survey.



Quadrangle Location

SCALE 1 : 24,000



CONTOUR INTERVAL 20 FEET



Topographic base from U.S. Geological Survey Cornish quadrangle, scale 1:24,000 using standard U.S. Geological Survey topographic map symbols.

The use of industry, firm, or local government names on this map is for location purposes only and does not implicate responsibility for any present or potential effects on the natural resources.

Ha	Alluvium - Fine to coarse sand, silt, and gravel deposited by modern streams.
Hw	Fresh water wetlands - Wetland areas where the water table is at or near the land surface and organic-rich sediment accumulates.
Qed	Sand dunes - Well-sorted fine to medium sand deposited as dunes by the action of wind.
Qst	Stream-terrace deposits - Fine to coarse sand and gravel deposits on terraces and next to modern streams, eroded into older glacial meltwater deposits.
Pld	Glacial-lacustrine deposits - Sediments which accumulated in glacial lakes. Includes deltas and lake-bottom deposits. In general, delta topsets are coarse sands and gravels; foresets are coarse to medium sand and bottom sediments are fine sands and silts.
Plpdl	- Delta deposits associated with Long Pond stage.
Plspdl	- Delta deposits associated with the Spruce Pond stage.
Plspbl	- Lake bottom deposits associated with the Spruce Pond stage.
Plb	- Deltaic glacial lake deposits in the Saco River valley at east border of quadrangle.
Plcd	- Delta deposits associated with Lake Cornish stage.
Plcb	- Bottom deposits associated with the Lake Cornish stage.
Plpd	- Delta deposits associated with the Saco stage.
Plpd	- Delta deposits associated with Lake Pigwacket stage.
Pg	Glacial-fluvial sand and gravel deposits - Sand and gravel deposited by glacial meltwater streams.
Pgs	- Saco River system
Pgpb	- Pugsley Brook system
Pgbb	- Breakneck Brook system
Pgsp1,2	- Spruce Pond system
Pgl	Ice-contact deposits - Scattered deposits of well-sorted sand and gravel which were formed by meltwater streams flowing between glacial ice and emergent hills.
Pge	Esker deposits - Sand and gravel deposited by meltwater streams flowing through subglacial tunnels. Form narrow ridges up to 100 ft. high.
Pgesp	- Spruce Pond system
Pgepb	- Pugsley Brook system

Pem	End moraines - Moraine ridges composed of glacial till, marking an ice marginal position.
Pt	Till - An unsorted, unstratified, mixture of materials ranging from boulders and cobbles to sand, silt, and clay. Material ranges from semiconsolidated to loose.
	Bedrock and thin drift - Gray areas are individual outcrops. Ruled pattern indicates areas where surficial sediments are generally less than 10 ft. thick.
	Geologic contact - Boundary between surficial geologic units. Dashed where location is uncertain.
	Streamlined hill - Elongated hill or till ridge with long axis oriented parallel to ice flow direction. Includes drumlins and roche moutonnées.
	Meltwater channel - Channel cut by meltwater stream or glacial lake outflow. Arrow indicates inferred direction of flow.
	Erosional scarp - Steep slope cut by a stream channel. Includes both meander scars along modern streams and the margins of broad glacial meltwater channels cut in older stratified drift. Relative age of meltwater channel indicated by number in some areas. Direction of meltwater flow indicated by arrow.
	Esker ridge - Shows trend of sand and gravel ridge deposited in a meltwater tunnel within or beneath glacial ice. Chevrons indicate direction of meltwater flow.
	Ice-margin position - Position of the ice margin at a particular time during stagnation-zone glacial retreat.
	Varve location - Outcrop of varves (annual couplets of sandy silt and clay deposited in the bottom of a glacial lake).
	Striations - Striations on the bedrock surface showing the local direction of glacial ice flow. Where two directions are present, flagged trend is older.
	Boulders - Area of numerous large boulders.

USES OF SURFICIAL GEOLOGY MAPS

A surficial geology map shows all the loose materials such as till (commonly called hardpan), sand and gravel, or clay, which overlie solid ledge (bedrock). Bedrock outcrops and areas of abundant bedrock outcrops are shown on the map, but varieties of the bedrock are not distinguished (refer to bedrock geology map). Most of the surficial materials are deposits formed by glacial and deglacial processes during the last stage of continental glaciation, which began about 25,000 years ago. The remainder of the surficial deposits are the products of postglacial geologic processes, such as river floodplains, or are attributed to human activity, such as fill or other land-modifying features.

The map shows the areal distribution of the different types of glacial features, deposits, and landforms as described in the map explanation. Features such as striations and moraines can be used to reconstruct the movement and position of the glacier and its margin, especially as the ice sheet melted. Other ancient features include shorelines and deposits of glacial lakes or the glacial sea, now long gone from the state. This glacial geologic history of the quadrangle is useful to the larger understanding of past earth climate, and how our region of the world underwent recent geologically significant climatic and environmental changes. We may then be able to use this knowledge in anticipation of future similar changes for long-term planning efforts, such as coastal development or waste disposal.

Surficial geology maps are often best used in conjunction with related maps such as surficial materials maps or significant sand and gravel aquifer maps for anyone wanting to know what lies beneath the land surface. For example, these maps may aid in the search for water supplies, or economically important deposits such as sand and gravel for aggregate or clay for bricks or pottery. Environmental issues such as the location of a suitable landfill site or the possible spread of contaminants are directly related to surficial geology. Construction projects such as locating new roads, excavating foundations, or siting new homes may be better planned with a good knowledge of the surficial geology of the site. Refer to the list of related publications below.

OTHER SOURCES OF INFORMATION

- Newton, R. M., 1997. Surficial geology of the Cornish 7.5-minute quadrangle, Cumberland, Oxford, and York Counties, Maine: Maine Geological Survey, Open-File Report 97-69, 19 p.
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- Thompson, W. B., 1979. Surficial geology handbook for coastal Maine: Maine Geological Survey, 68 p. (out of print)
- Thompson, W. B., and Borns, H. W., Jr., 1985. Surficial geologic map of Maine: Maine Geological Survey, scale 1:500,000.
- Thompson, W. B., Crossen, K. J., Borns, H. W., Jr., and Andersen, B. G., 1989. Glaciomarine deltas of Maine and their relation to late Pleistocene-Holocene crustal movements, in Anderson, W. A., and Borns, H. W., Jr. (eds.), Neotectonics of Maine: Maine Geological Survey, Bulletin 40, p. 43-67.